



Critical Care Suite 2.0

ON-DEVICE ARTIFICIAL INTELLIGENCE.
HELPING YOU WHEN EVERY MINUTE COUNTS.

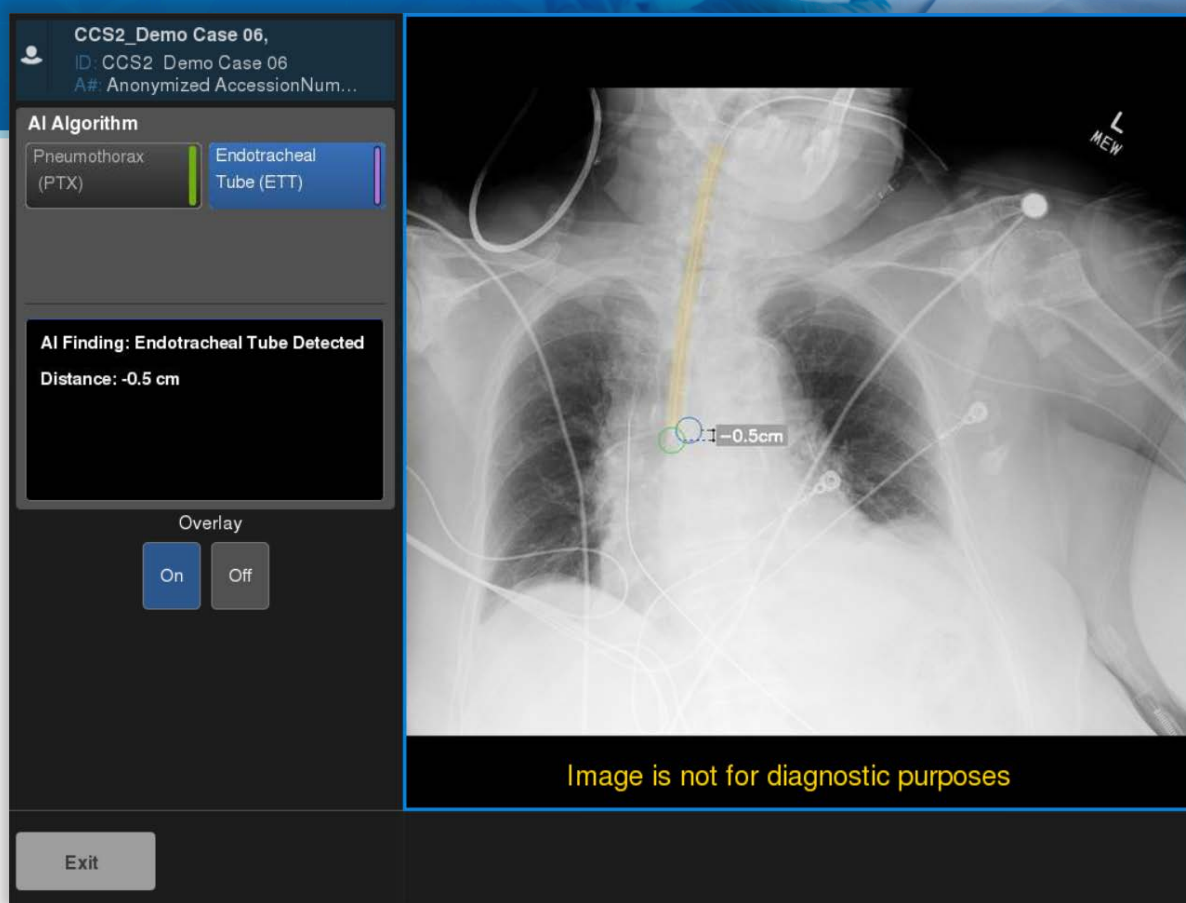
Critical Care Suite is a collection of AI algorithms embedded on X-ray systems for automated measurements, detection and triage of critical conditions and quality control

In these challenging times, radiographers, radiologists, and physicians are all under tremendous pressure to manage an ever-increasing number of cases. Every minute counts when dealing with high-risk procedures such as tracheal intubation¹ and critical conditions including pneumothorax. When X-ray exams alone contribute to 60 percent of imaging,² it's crucial to highlight critical information and help clinicians respond fast without compromising diagnostic precision.



Critical Care Suite

We developed a collection of on-device algorithms that integrate seamlessly with your existing X-ray workflow and assist you in delivering the highest quality care to patients.



AI findings shown on AMX™ 240 mobile X-ray device



ENDOTRACHEAL TUBE POSITIONING

On-device AI solution that helps assess ET Tube positioning



PNEUMOTHORAX TRIAGE & NOTIFICATION

On-device AI application that detects and helps prioritize critical cases such as Pneumothorax



QUALITY CARE SUITE

AI algorithms that operate in parallel and help radiographers reduce image quality errors and improve efficiency

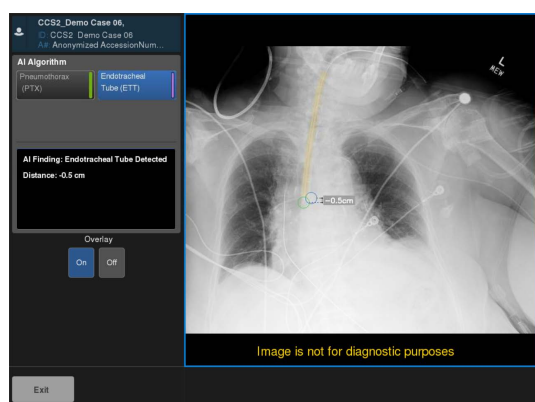
Endotracheal Tube Positioning

One of the high-risk procedures carried out in the ICU and ER is tracheal intubation. Improper positioning of the endotracheal tube during intubation poses a serious health risk to patients. A major complication is accidental migration of the tube tip into a mainstem bronchus. If unrecognized, this can lead to hypoxemia and collapse of the contralateral lung, hyperinflation of the intubated lung with resultant tension pneumothorax, and cardiac arrest.

Up to **25% of patients** intubated outside of the operating room have **mispositioned ETTs** on chest X-rays³⁻⁶

THE FIRST ON-DEVICE AI SOLUTION THAT HELPS ASSESS ET TUBE POSITIONING

GE Healthcare's Critical Care Suite 2.0 now includes an AI algorithm that helps assess endotracheal tube positioning.



Confidence at Point of Care

- Provides an accurate and automated measurement of ET Tube position on the mobile X-ray device within seconds of image acquisition
- On-device algorithm automatically detects the presence of ET tube in AP chest X-ray images on mobile X-ray
- In 94% of cases the ET Tube tip-to-Carina distance calculation is accurate to within 1.0 cm⁷
- The vertical distance between the tube tip and the carina is automatically calculated and displayed on device

ET Tube Cases at a Glance

- Enables immediate access to AI-derived measurements in PACS worklist via configurable DICOM® tags
- Displays AI-generated measurements with an image overlay in PACS

Critical Care Suite's Endotracheal Tube Positioning algorithm is available on AMX 240 mobile X-ray systems.



Pneumothorax Detection and Triage

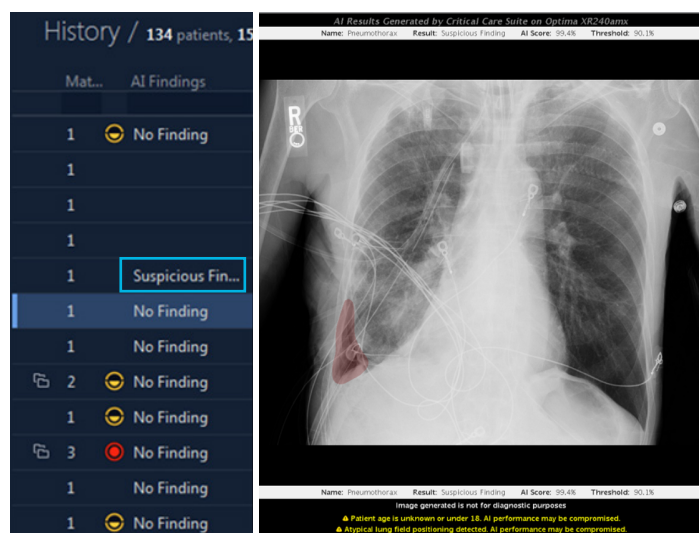
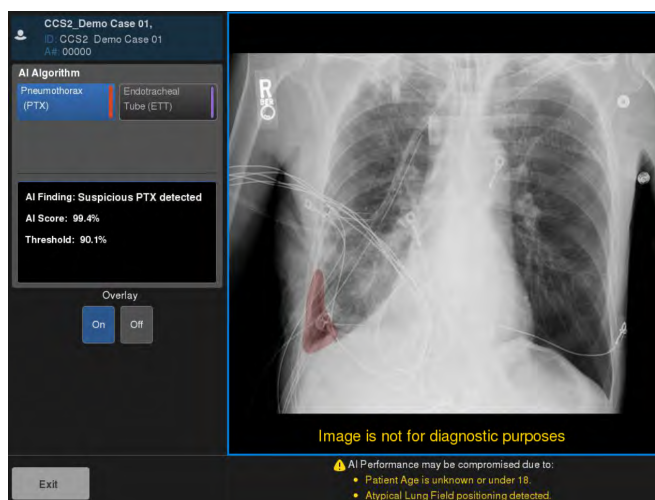
Given the high number of chest X-rays ordered as “STAT,” i.e. with immediate priority, the triaging of true STATs has become challenging for radiographers and radiologists. Turnaround times can be as long as eight hours, even when chest X-rays are marked as urgent for patients with potentially life-threatening conditions such as Pneumothorax, or collapsed lung^{8,9}

ON-DEVICE AI APPLICATION THAT HELPS PRIORITIZE PNEUMOTHORAX

Critical Care Suite includes the world’s first, on-device AI solution that can detect and help triage critical conditions, such as pneumothorax, alleviating the overwhelming demand that urgent X-rays are placing on radiology teams.

High Accuracy¹⁰

- Detects nearly all large pneumothoraces (**96% sensitivity**)
- Identifies 3 out of 4 small pneumothoraces (75% sensitivity)
- Limits false alerts (94% specificity)
- An Area Under Curve (AUC) of **0.96**



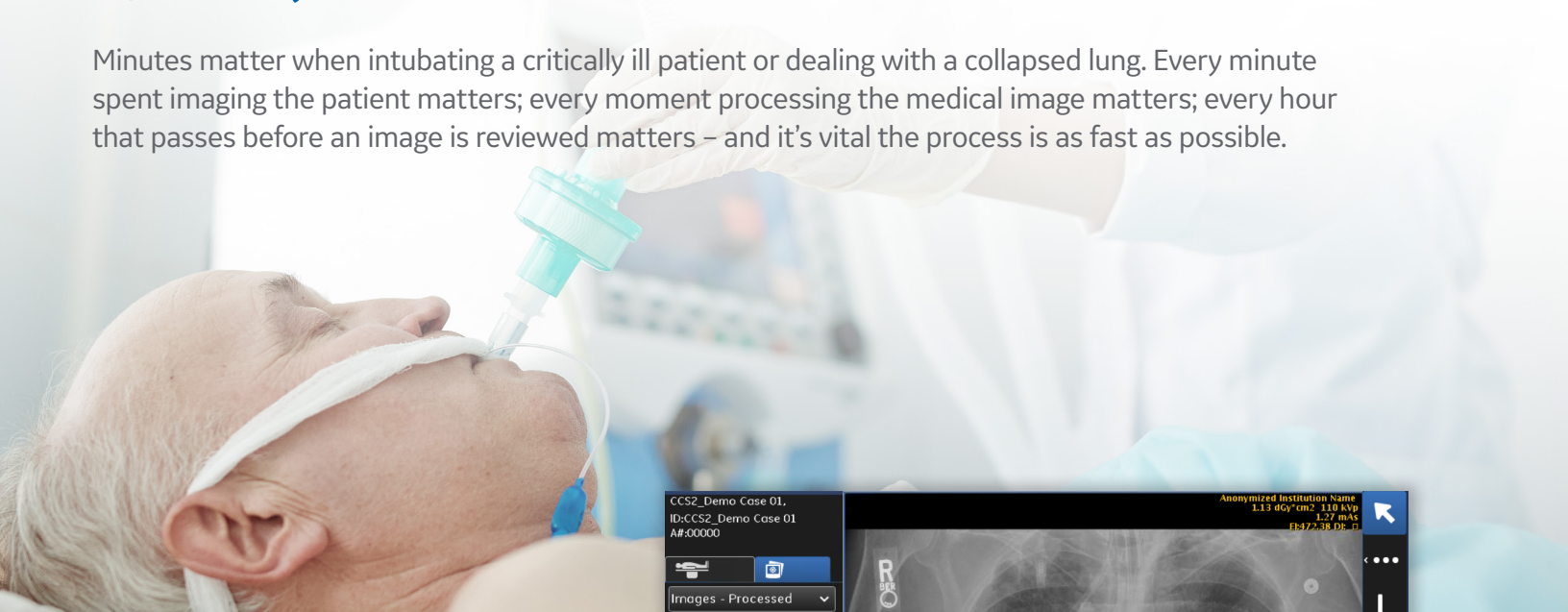
Triage Notifications

- Sends a secondary capture DICOM image to PACS and presents the AI results to the radiologist
- Image flags help enable worklist prioritization and have the potential to expedite review of critical findings

Pneumothorax detection and triage is included in Critical Care Suite 2.0 and is available on AMX 240 mobile X-ray systems as well as Definium™ 656 HD and Definium 646 HD fixed X-ray systems.

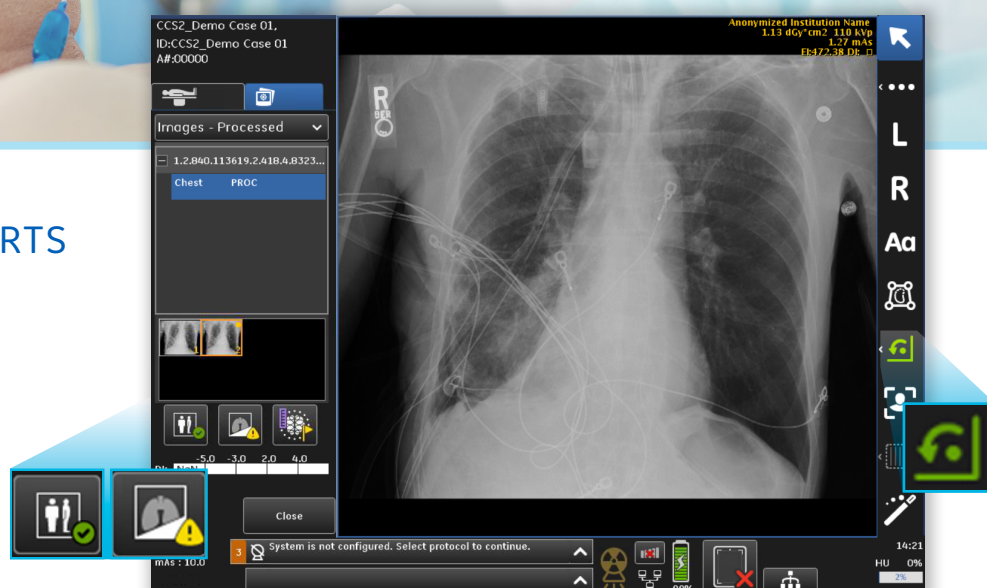
Quality Care Suite

Minutes matter when intubating a critically ill patient or dealing with a collapsed lung. Every minute spent imaging the patient matters; every moment processing the medical image matters; every hour that passes before an image is reviewed matters – and it's vital the process is as fast as possible.



REAL-TIME QUALITY ALERTS

Quality Care Suite includes AI algorithms that operate in parallel and help technologists reduce image quality errors and improve efficiency.



Intelligent Auto Rotate

Saves technologists 3–4 user interface clicks on more than 80% of mobile chest X-ray exams, saving up to 70,000 “clicks” a year⁷



Intelligent Protocol Check

Conducts an automated quality check to detect errors on the acquisition system, such as improper protocol used (AUC >0.99)¹⁰



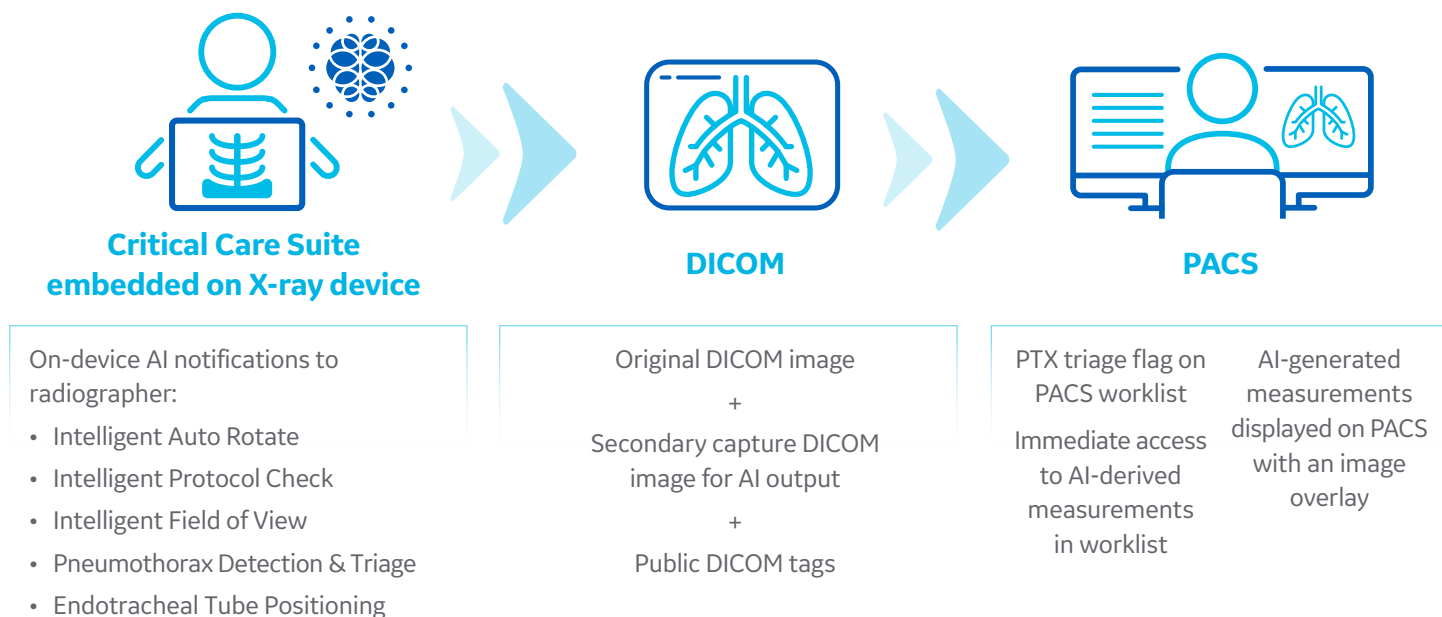
Intelligent Field of View

Detects when a lung field is clipped in a frontal chest X-ray (AUC >0.99) and allows technologists to determine if a repeat is required before sending the image to PACS¹⁰

Quality Care Suite is included in Critical Care Suite 2.0 and is available on AMX 240 mobile X-ray systems as well as Definium 656 HD and Definium 646 HD fixed X-ray systems.

Seamless integration with your X-ray imaging workflow

Critical Care Suite's on-device AI algorithms automatically analyze X-rays without routing images to a server. The AI output is sent directly to PACS via a secondary capture DICOM image.



Built to improve the standard of care you're delivering to patients

Critical Care Suite is the world's first collection of on-device AI algorithms for automated measurements, detection and triage of critical conditions and quality control.



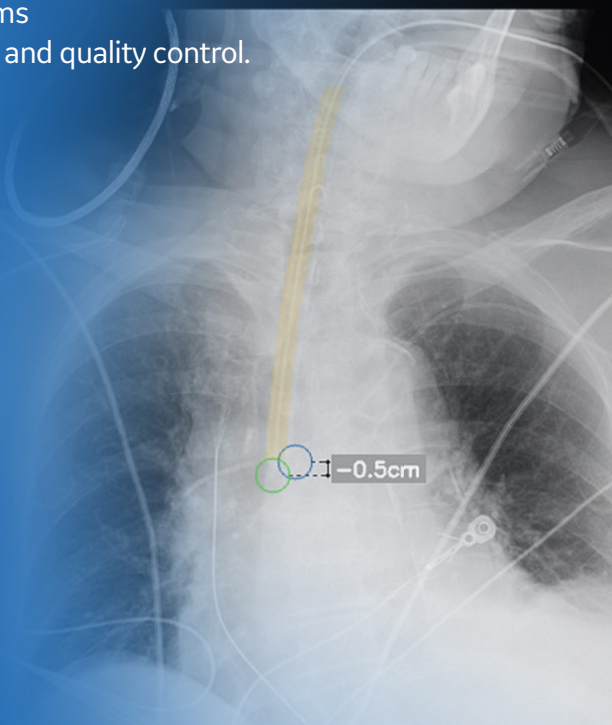
AI embedded on device, at point of care without need for additional IT infrastructure



Robust AI algorithm trained on a large, global, diverse data set
>30K images, multiple countries and institutions



Seamless integration with PACS for rapid review by the radiologist
AI-derived measurement is sent to PACS within configurable public DICOM tags



References:

1. Stephen E. Lapinsky. Endotracheal intubation in the ICU. Crit Care. 2015; 19(1): 258.
2. World Health Organization Report -Communicating Radiation Risks in Pediatric Imaging.
3. Jemmett ME, Kendal KM, Fourre MW, Burton JH. Unrecognized misplacement of endotracheal tubes in a mixed urban to rural emergency medical services setting. Acad Emerg Med 2003;10:961-5.
4. Katz SH, Falk JL. Misplaced endotracheal tubes by paramedics in an urban emergency medical services system. Ann Emerg Med 2001;37:32-7.
5. Lotano R, Gerber D, Aseron C, Santarelli R, Pratter M. Utility of postintubation chest radiographs in the intensive care unit. Crit Care 2000;4:50-3.
6. McGillicuddy DC et al. Is a postintubation chest radiograph necessary in the emergency department? Rachh, Pratik, et al. "Reducing STAT Portable Chest Radiograph Turnaround Times: Int J Emerg Med 2009;2:247-9.
7. GE Healthcare Data on File.
8. A Pilot Study." Current problems in diagnostic radiology (2017).
9. Lorenz, Jonathan, and Matthew Blum. "Complications of percutaneous chest biopsy." Seminars in interventional radiology. Vol. 23. No. 2. Thieme Medical Publishers, 2006.
10. FDA 510(k) K183182.



© 2020 General Electric Company – All rights reserved.

GE Healthcare reserves the right to make changes in specifications and features shown herein, or discontinue the product described at any time without notice or obligation. Contact your GE Healthcare representative for the most current information. GE, the GE Monogram, AMX and Definium are trademarks of General Electric Company. DICOM is a trademark of National Electrical Manufacturers Association. GE Healthcare, a division of General Electric Company. GE Medical Systems, Inc., doing business as GE Healthcare. All other third party trademarks are the property of their respective owners.

November 2020
JBxxxxxx